REMARKS

This application has been carefully reviewed in light of the Office Action dated September 13, 2004. Claims 1 to 63 are pending in the application. Claims 6, 15, 21 to 23, 27, 31, 40 and 46 to 48 have been amended, and Claims 1, 10, 26 and 35 are in independent form. Reconsideration and further examination are respectfully requested.

Applicants thank the Examiner for the indication that Claims 5, 8, 14, 17, 19, 20, 24, 30, 33, 39, 42, 44, 45 and 49 would be allowable if rewritten in independent form, including all of the limitations of the base claims. Applicants have chosen not to rewrite these claims at this time since the base claims for each of Claims 5, 8, 14, 17, 19, 20, 24, 30, 33, 39, 42, 44, 45 and 49 are believed to be allowable for at least the reasons set forth below.

In response to the formal objection to the Abstract, the Abstract has been cancelled and a replacement Abstract has been provided. Reconsideration and withdrawal of this objection are respectfully requested.

Claims 3, 10, 12, 15, 18, 19, 25, 28, 37, 44, 50, 51 and 54 to 59 were objected to based on informalities.

With regard to the objection of Claims 3, 12, 19, 25, 28, 37, 44, 50, 51 and 54 to 59, the Office Action indicated that each of these multiple-dependent claims was considered with respect to one claim from which it depends. However, Applicant is unclear as to the basis of this objection. Applicant respectfully submits that the dependency for each of Claims 3, 12 19, 25, 28, 37, 44, 50, 51 and 54 to 59 is seen to be proper, and that each of these claims should be considered with respect to each claim from which it depends. Reconsideration and withdrawal of this objection are respectfully

requested.

The Office Action also contended that Claims 10, 15 and 18 have the exact limitations as Claims 1, 6 and 9. Applicant respectfully disagrees.

Claims 1, 6 and 9 are directed to "transforming an input digital signal into one or more output digital signals having even-indexed samples and odd-indexed samples". The invention of these claims can be used, for example, in the context of direct filtering (or analysis) of data. On the other hand, Claims 10, 15 and 18 are directed to "transforming one or more input digital signals into an output digital signal". The invention of these claims can be used, for example, in the context of inverse filtering (or synthesis) of data. Reconsideration and withdrawal of this objection are therefore respectfully requested.

Claims 6, 15, 21 to 23, 31, 40 and 46 to 48 were rejected under 35 U.S.C. § 112, second paragraph, for alleged indefiniteness. In response, Claims 6, 15, 21 to 23, 31, 40 and 46 to 48 have been amended. Reconsideration and withdrawal are respectfully requested.

Claims 1 to 4, 6, 7, 9 to 13, 15, 16, 18, 24 to 29, 31, 32, 34 to 38, 40, 41, 43 and 50 to 63 were rejected under 35 U.S.C. § 102(e) over U.S. Patent No. 6,757,343 (Ortega). This rejection is respectfully traversed.

The present invention generally concerns data transformation in which input (or output) signals have even-indexed samples and odd-indexed samples. The even-indexed samples are modified by a function of weighted odd-indexed samples, and the odd-indexed samples are modified by a function of weighted even-indexed samples. According to one feature of the invention, the weighted samples are obtained by at least

one weighting operation applied to a difference between two consecutive even-indexed samples.

Referring specifically to the claims, independent Claim 1 is directed to a filtering method for transforming an input digital signal into one or more output digital signals having even-indexed samples and odd-indexed samples. The method includes at least one iteration comprising the steps of modifying the even-indexed samples by a function of weighted odd-indexed samples, and modifying the odd-indexed samples by a function of weighted even-indexed samples. The weighted samples are obtained by at least one weighting operation applied to a difference between two consecutive even-indexed samples.

Independent Claim 10 is directed to a filtering method for transforming one or more input digital signals into an output digital signal, the input signals including even-indexed samples and odd-indexed samples. The method includes at least one iteration comprising the steps of modifying odd-indexed samples by a function of weighted even-indexed samples, and modifying even-indexed samples by a function of weighted odd-indexed samples. The weighted samples are obtained by at least one weighting operation applied to a difference between two consecutive even-indexed samples.

Independent Claim 26 is directed to a digital filtering device adapted to transform an input digital signal into one or more output digital signals containing even-indexed samples and odd-indexed samples. The filtering device comprises at least one weighting module, and means for modifying even-indexed samples by a function of weighted odd-indexed samples. Weighted samples are supplied by the at least one weighting module, the modification means functioning iteratively, so as to modify even-

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indexed samples at least once and then odd-indexed samples at least once, and the at least one weighting module receives as an input the difference between two consecutive even-indexed samples.

Independent Claim 35 is directed to a digital filtering device adapted to transform one or more input digital signals into an output digital signal, the input signals containing even-indexed samples and odd-indexed samples. The filtering device comprises at least one weighting means, means for modifying odd-indexed samples by a function of weighted even-indexed samples, and means for modifying even-indexed samples by a function of weighted odd-indexed samples. The weighted samples are supplied by the at least one weighting means, and the modification means functions iteratively, so as to modify odd-indexed samples at least once and then even-indexed samples at least once. The at least one weighting means receives as an input the difference between two consecutive even-indexed samples.

The applied art is not seen to disclose or to suggest the features of the present invention. In particular, the Ortega patent is not seen to disclose or suggest at least the feature of obtaining weighted samples by at least one weighting operation applied to a difference between two consecutive even-indexed samples.

As understood by Applicant, Ortega discloses multilevel wavelet decomposition in which input data is segmented into blocks and each block is processed separately, either sequentially or in parallel. Results of partially completed computations in each block are saved and used to complete computations in an adjacent block. See Ortega, Abstract. However, Ortega is not seen to disclose or suggest that weighted samples are obtained by at least one weighting operation applied to a difference between two

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consecutive even-indexed samples.

The Office Action cited to Figure 4 of Ortega, in which an alpha value is applied to even-indexed samples when updating odd-indexed samples. With reference to Figure 28 of Ortega, it is further disclosed that a value $x^0(1)$ is updated into:

$$x^1(1) = x^0(1) + \alpha(x^0(0) + x^0(2)),$$

and that similar updating occurs for samples $\{x^0(3), x^0(5), x^0(7)\}$. See Ortega, column 26, line 50 to column 27, line 1. As such, Ortega is seen to teach that an alpha value is applied to even-indexed samples that are summed.

In contrast, the present invention applies at least one weighting operation to a difference, namely, the difference between two consecutive even-indexed samples. For example, according to one embodiment of the present invention, as described at page 21, line 15 of the specification, a weighting operation is applied to consecutive even-indexed samples y_{2n} and y_{2n+2} as follows:

$$\forall n, y_{2n+1} = y_{2n+1} + R(\beta_{0,j} \cdot (y_{2n} - y_{2n+2})).$$

Accordingly, Ortega is not seen to disclose or suggest that weighted samples are obtained by at least one weighting operation applied to a difference between two consecutive even-indexed samples.

Based on the foregoing amendments and remarks, independent Claims 1, 10, 26 and 35 are believed to be allowable over the applied reference.
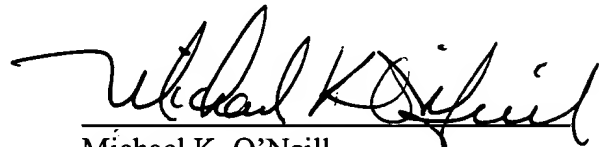
The other claims in the application are each dependent from the independent claims and are believed to be allowable over the applied reference for at least the same reasons. Because each dependent claim is deemed to define an additional aspect of the invention, however, the individual consideration of each on its own merits is respectfully

requested.

No other matters being raised, it is believed that the entire application is fully in condition for allowance, and such action is courteously solicited.

Applicant's undersigned attorney may be reached in our Costa Mesa, California office at (714) 540-8700. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,

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